

Utilization Options for CBM:

from Field Definition through Commercialization

CMPDI Virtual Meet Session

“CBM Resource-Reserve Assessment”

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CBM Experience in India

UNDP/GEF and Government of India CMM/CBM Project¹

➤ Moonidih Mine

- CBM 5000 m³/day (2 wells combined production)
- 4 x 250 kW generators (2 operating)

➤ Sudamdih Mine

- Horizontal well drilling (no wells completed)
- CNG compressor designed (no supply) – fueling mine trucks

CBM Field Development Phases

- Testing
- Pilot Production and Dewatering
- Development
- Commercialization

CBM Utilization Options

- Testing Phase
- Pilot Production and Dewatering Phase
- Development Phase
- Commercialization Phase

CBM Utilization Options

Commercialization Phase

- Pipeline Delivery
 - Power generation
 - Vehicle and rolling stock fuel (CNG)
 - Industrial
 - Chemical feedstock - e.g. H_2 , methanol, NH_3
 - Fuel - e.g. steel plants
 - Commercial
 - Residential

CBM Utilization Options

- Testing Phase
- Pilot Production and Dewatering Phase
- Development Phase
- Commercialization Phase

CBM Utilization Option Planning

- Gas Quantity
- Gas Quality
- Existence of uses
 - Onsite
 - Distant

CBM Utilization Options

- Testing Phase
- Pilot Production and Dewatering Phase
- Development Phase
- Commercialization Phase

CBM Utilization Options

Pilot Production and Dewatering Phase

- Onsite Uses

- Offsite Delivery

- ❖ CNG or adsorbed CNG (ACNG), if quantities are sufficient
 - Deliver with tube trailers or tankers

Onsite CBM Utilization Options

❖ Water pumping

- fuel for

- well dewatering
- water treatment
- irrigation
- other local water uses



Onsite CBM Utilization Options

- ❖ Power generation

- internal combustion (IC) engines



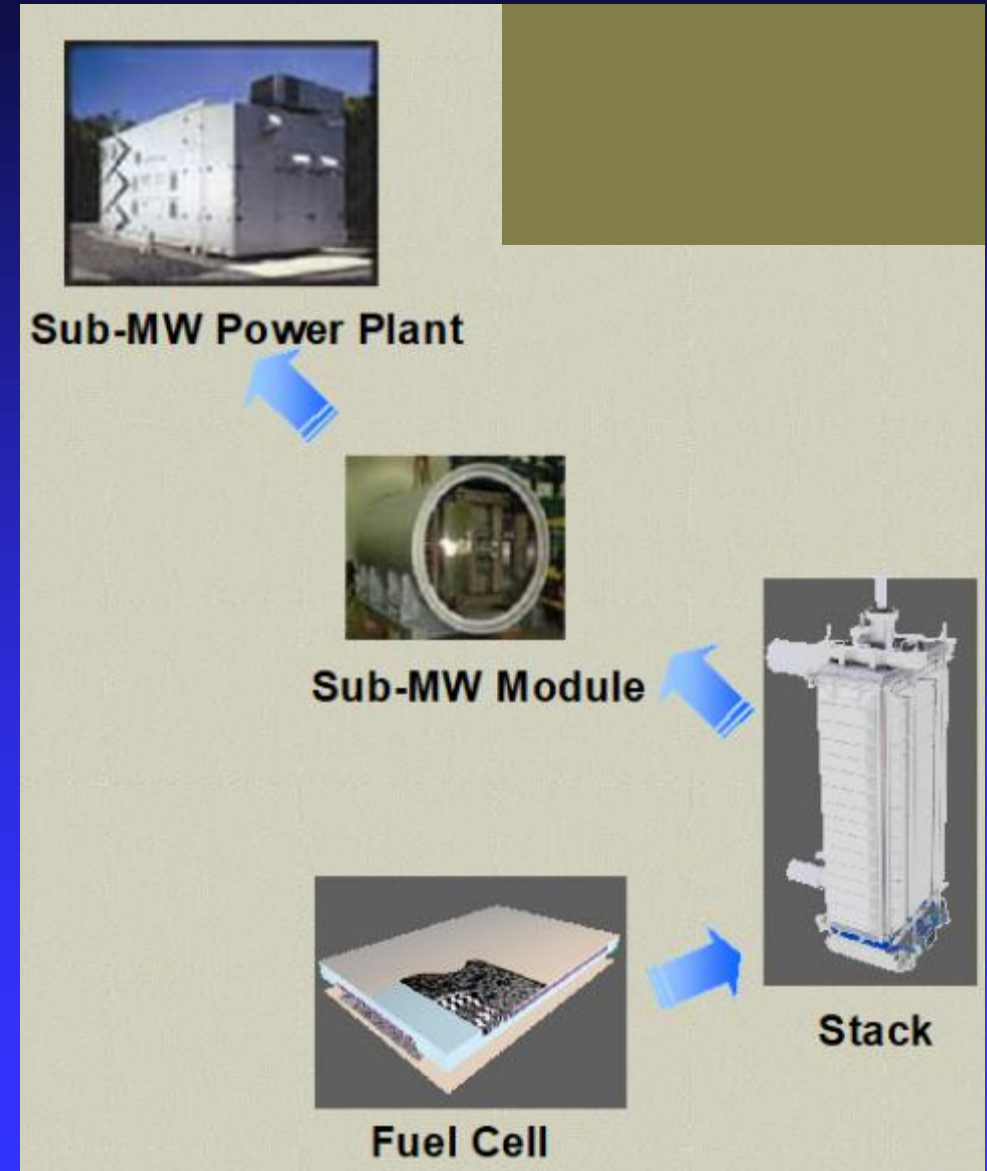
Onsite CBM Utilization Options

- ❖ Power generation
 - micro-turbines



Onsite CBM Utilization Options

- ❖ Power generation
 - Fuel Cell



Onsite CBM Utilization Options

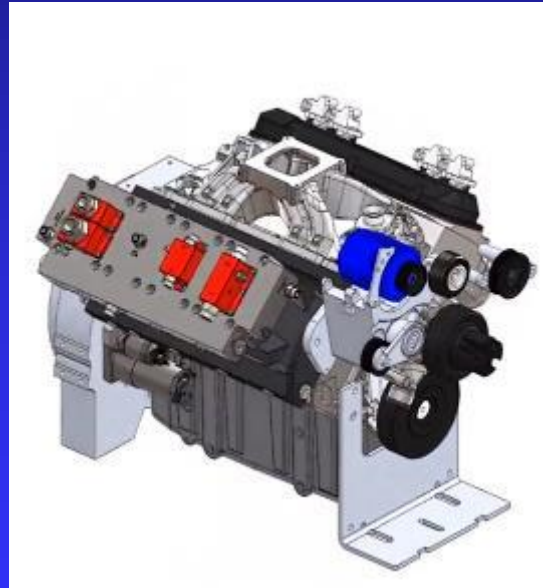
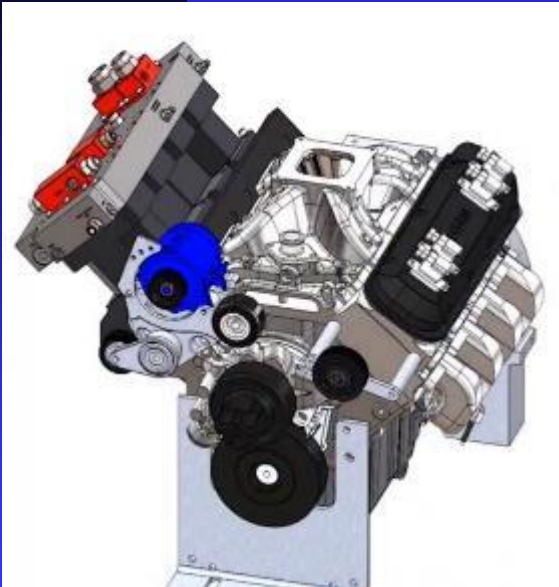
- ❖ Compressed natural gas (CNG)

Onsite CBM Utilization Options

❖ Compressed natural gas (CNG)



Portable V-8
engine/compressor

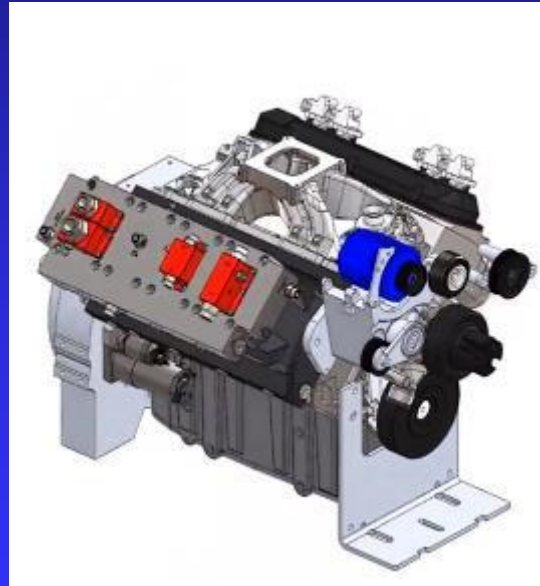
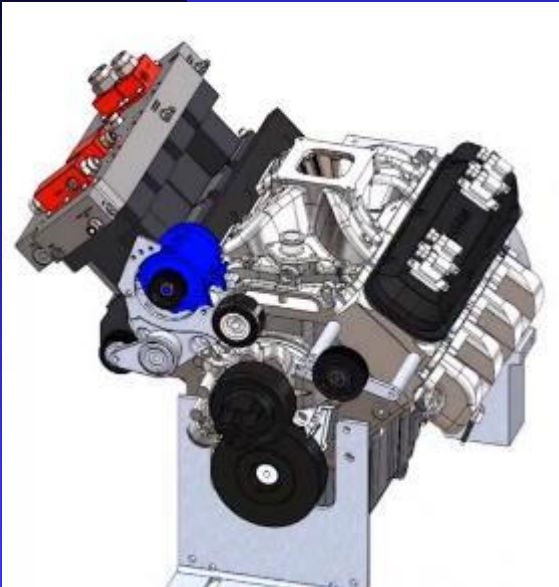


Onsite CBM Utilization Options

- ❖ Compressed natural gas (CNG)
 - vehicle fuel



Portable fueling station



Onsite CBM Utilization Options

❖ Gas upgrading

- pressure swing adsorption (PSA)
- rapid PSA



CBM Utilization Options

- Testing Phase
- Pilot Production and Dewatering Phase
- Development Phase
- Commercialization Phase

CBM Utilization Options

Development Phase

- Onsite uses
 - Move existing equipment as needed
 - Expansion of onsite uses from the Pilot Phase
- Offsite Delivery
 - Expand CNG deliveries
 - Initial pipeline deliveries

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Other Technology Developments

- Enhanced CBM production from low-permeability coal seams using PSA concepts
- Mine ventilation air cooling using hydraulic air compression (HAC) and expansion

Thank You !

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